

AN5160NK

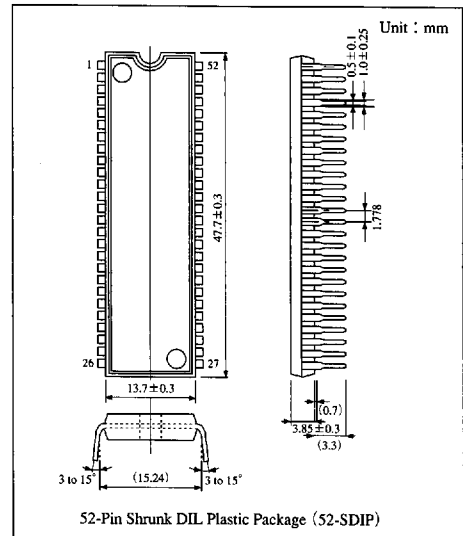
VIF, SIF, Video Color and Synchronous Signal Processor IC (NTSC System)

Overview

The AN5160NK is a single chip integrated circuit in which all signal (VIF, SIF, video, color and synchronous signal) processing circuits of the NTSC color TV are integrated.

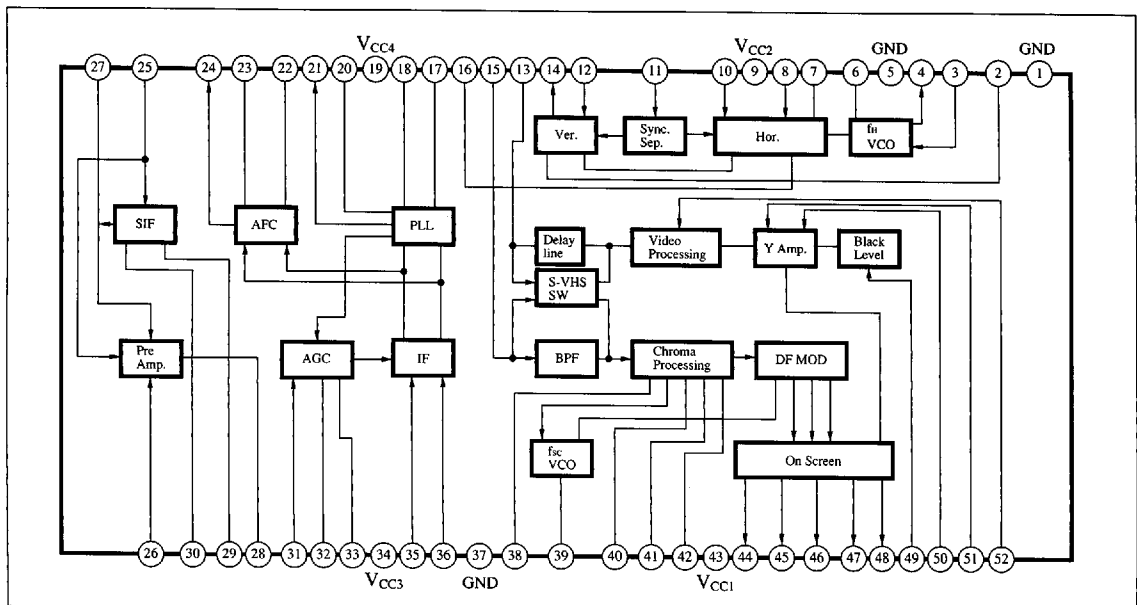
Features

- VIF circuit using PLL complete synchronous detection
- Audio external-input pin and volume adjusting-circuit built-in
- Y delay line built-in and Y delay line switchable
- Black-level compensating circuit built-in
- 3.58MHz BPF built-in
- APC Killer filter built-in (adjustment free APC)
- On-screen pin attached (Only for green and the other outputs are blanking)
- Compatible with S-VHS system (3.58MHz ON/OFF switching)
- Horizontal/vertical oscillation frequency are adjustment-free.
- Horizontal synchronous lock detecting pin attached
- Can be connected directly to the Panasonic's vertical output IC, AN5534
- Service switch circuit built-in (ver out stop, Y out blanking)
- Y output is black level when no synchronous signal is input



ICs for TV

Block Diagram



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■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit	Note
Supply voltage	V _{CC1}	12	V	
Supply current	I _{CC}	I ₄₃	82	mA
		I ₉	30	
		I ₁₃₄₊₁₉	61	
Power dissipation	P _D	1,300	mW	Ta=70°C
Operating ambient temperature	T _{opr}	-20 to +70	°C	
Storage temperature	T _{stg}	-55 to +150	°C	

■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating supply voltage range	V _{CC1}	8.1V to 9.9V
	V _{CC3,4}	4.5V to 5.5V

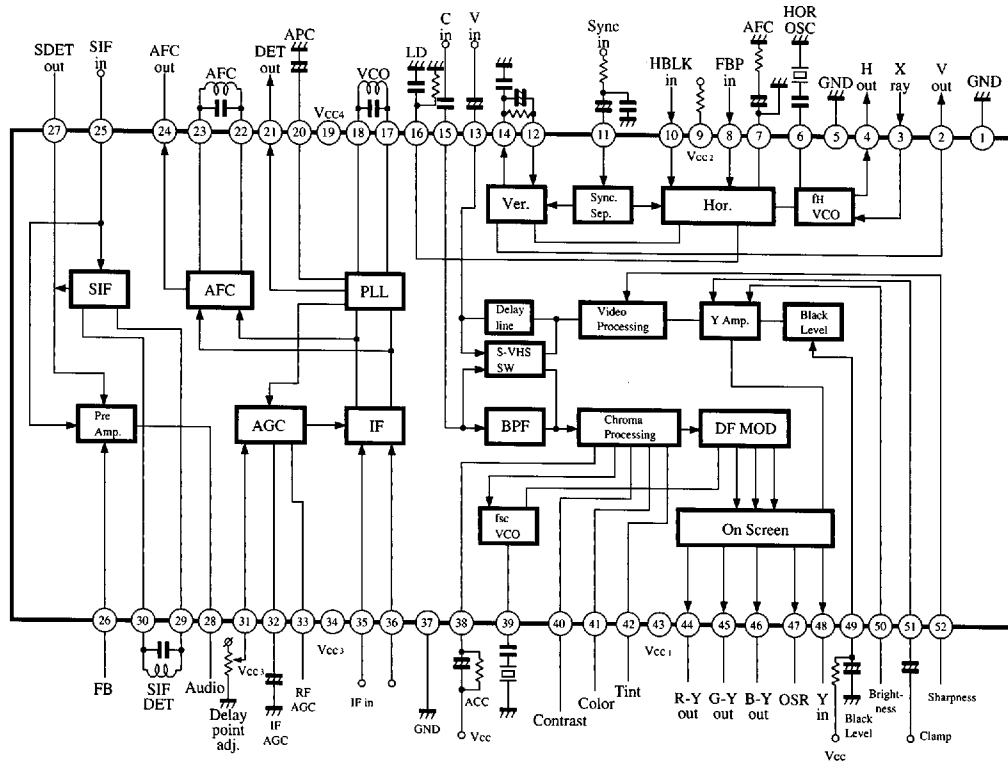
■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
VIF Section						
Video detection output	V _{O21}	m=87.5%, V _{in} =80dB μ	1.75	2	2.25	V _{PP}
Video frequency characteristics	f _C	-3dB frequency at 1MHz detection output	4	5.5	—	MHz
VCO oscillator sensitivity	β	$\Delta V_{20}=0.2V$ (DC : about 2V)	3	4.3	6.5	kHz/mV
RFAGC sensitivity	G _{RF}	Difference in input level of V ₃₃ =1V \rightarrow 7V	—	1.5	3	dB
AFC phase detector sensitivity	μ _{AFC}	R _L =100k Ω //100k Ω	25	40	55	mV/kHz
SIF Section						
Audio detection output	V _{O27}	f ₀ =4.5MHz, V _{in} =100dB μ , $\Delta f = \pm 25kHz$, f _m =1kHz	125	155	185	mV _{rms}
Audio output	V _{O28}	f ₀ =4.5MHz, V _{in} =100dB μ , $\Delta f = \pm 25kHz$, f _m =1kHz	410	530	650	mV _{rms}
Video Signal Processing Section						
Video voltage gain	A _V	Input : f=1MHz, 0.2V _{PP} Contrast VR : max.	7.6	9.3	12.2	Times
Video frequency characteristics	f _{YC}	Picture quality VR : min., 3dB down from f=1MHz	4.5	5.5	—	MHz
Brightness oscillator sensitivity	BR	Bright VR=7.5 to 8V	-4.5	-3.6	-2.7	Times
Chroma Signal Processing Section						
Color difference output (typ)	e _{O1B}	B-Y color bar signal Color VR : 3.3V Contrast VR : 5V	2.3	3	3.7	V _{PP}
Color difference output (max)	e _{O2B}	B-Y color bar signal Color VR : 5V Contrast VR : 5V	3.7	4.7	5.7	V _{PP}
ACC characteristics (1)	ACC ₁	Burst 200 \rightarrow 400mV _{PP}	0.9	1	1.1	Times
ACC characteristics (2)	ACC ₂	Burst 200 \rightarrow 20mV _{PP}	0.5	0.7	1	Times
Demodulated output ratio (1)	R/B	Color bar signal (Burst 200mV _{PP})	0.72	0.96	1.2	Times
Demodulated output ratio (2)	G/B	Color bar signal (Burst 200mV _{PP})	0.22	0.31	0.39	Times
Demodulated angle R	$\angle R$	Color bar signal (Burst 200mV _{PP})	89	104	119	deg
Demodulated angle G	$\angle G$	Color bar signal (Burst 200mV _{PP})	225	240	255	deg
Color killer tolerance	e _K	Color bar signal Burst 200mV _{PP} =0dB	-55	-42	-30	dB
Synchronous Signal Processing Section						
Horizontal natural oscillation frequency	f _{HO}	Output frequency of Pin④	15.45	15.75	16.05	kHz
Horizontal pull-in range	f _{PH}		15.25	—	16.25	kHz

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■ Application Circuit



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